Economics and Sociology
Occasional Paper No. 2059

THE DESIGN OF SUCCESSFUL RURAL FINANCIAL INTERMEDIARIES: EVIDENCE FROM INDONESIA

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May 1993

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Abstract

This paper examines the high degree of success of several systems of rural financial intermediaries in Indonesia, in terms both of self-sustainability and outreach. These systems have provided credit and deposit services, profitably and at low transaction costs, to large numbers of very small individual clients. This generalized success reflects both a hospitable environment for financial intermediation and, particularly, the elements of an effective organizational design, in reflection of an underlying concern with institutional viability. This design has provided both the incentives and opportunities for successful behavior. The provision of financial services to marginal clientele depends on the solution of the paradox resulting from those agents with inexpensive access to information and monitoring mechanisms not having enough resources or being too risk averse to locally provide sufficient credit, while those with the resources have no access to the required information and contract enforcement tools. Regulatory constraints may make this situation worse. The design of Indonesian locally-operated financial institutions offers a solution to this paradox. Character-based lending that relies on local agents is comparatively inexpensive. With the recruitment of local agents for lending, however, the information/enforcement problem becomes an agency problem. In Indonesia, the solution has been a system of compatible incentives (performance-based remunerations and efficiency wages), coupled with the verification of profits. In practice, managers have been made co-owners. This requires that managers possess discretionary powers over performance-relevant variables. Thus, no loan targeting exists and financial policies, while not uniform, have been adequate to protect institutional viability. The one-time subsidies implicit in seed capital and start-up loans to these intermediaries have not created dependency on outside funds, while the extent of the interventions has been proportional to the magnitude of the problems to be solved, rather than being massive undertakings with large fixed-cost structures. Gradual growth, by trial and error, has been a good approach to institution building. These organizations have been credibly committed to collect loans, while borrowers have pledged their (valuable) reputation as collateral. Traditional hierarchical structures (village chief) have been used for contract enforcement. The chief may also be operating as an indigenous credit rating agency. The lessons learned in Indonesia shed light on successful institution building elsewhere.

The Design of Successful Rural Financial Intermediaries: Evidence from Indonesia[1]

by

Rodrigo A. Chaves and Claudio Gonzalez-Vega[2]

I. Introduction

The high degree of success of several rural financial intermediaries (RFIs) in Indonesia has attracted a great deal of interest. The performance of the *Bank Rakyat Indonesia's unit desa* (BRI-unit desa) and *Badan Kredit Kecamatan* (BKK) systems has been well documented. Among others, Patten and Rosengard (1991) and Yaron (1992) are excellent studies of these two RFIs. These evaluations provide evidence of the comparatively strong success of these organizations. Yaron, for instance, reports that the BKK and the BRI-unit desa have attained higher levels of sustainability --as shown by subsidy dependence indexes and other indicators-- than other RFIs widely regarded as successful, such as the Grameen Bank in Bangladesh and the Bank for Agriculture and Agricultural

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[1] Paper prepared for the conference "Finance 2000. Financial Markets and Institutions in Developing Countries: Reassessing Perspectives," held in Washington, D.C. on May 27-28, sponsored by The Ohio State University, the Institute for Policy Reform, and the Agency for International Development.

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Cooperatives (BAAC) in Thailand.[3] Patten and Rosengard found that the long-term loan loss ratio for the BRI-unit desa and the BKK was only 1.35 and 1.98 percent, respectively.[4] Such loan recovery rates have few, if any, counterparts in rural financial markets in developing countries. Both systems have been profitable.

In general, successful RFIs represent the exception rather than the norm. Several other RFI systems in Indonesia have shown, however, a success comparable to that of the BKK and the BRI-unit desa. Gonzalez-Vega and Chaves (1992) document the performance of less well-known systems, several of which have received technical assistance from the Financial Institutions Development Project (FID) sponsored by the Agency for International Development (AID); namely: the *Lembaga Perkreditan Desa* (LPD) of Bali, the *Badan Kredit Kecamatan* of Central Java (BKK-CJ) and of South Kalimantan (BKK-SK), and the *Kredit Usaha Rakyat Kecil* (KURK) of East Java. The authors observed the operations of the *Badan Kredit Desa* (BKD) in Central Java, and the *Lumbung Pitih Nagari* (LPN) in West Sumatra, which appeared to have achieved a reasonable degree of success as well.[5]

These systems are collections of semi-autonomous organizations or units, established with heavy government support. The units are formally owned by the corresponding

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[3] The subsidy dependence index (SDI) is an indicator of self-sustainability developed by Yaron (1992) that measures the percentage increase in lending interest rates required to compensate for the elimination of the subsidies received by the RFI.

[4] The long-term loss ratio is given by the cumulative arrears plus cumulative write-offs as a proportion of the cumulative amount due, measured over an extended period of time. The figures reported by Patten and Rosengard correspond to 1972 through 1987.

[5] For an additional evaluation of the performance of some of these systems see Gonzalez Vega (1982), Goldmark and Lucock (1988), and Rhyne (1991).

provincial government (BKK-CJ, BKK-SK, KURK), the village dwellers (LPD, BKD), or their clients (LPN). Not only have demonstration effects been strong across systems, but the approach of these organizations has been imitated by some private banks, such as the Bank Sampoerna International of East Java, which has developed a network of about 50 units, chartered independently, to successfully provide similar rural financial services.

II. Successful Rural Financial Intermediaries

Any examination of the success of a RFI must include an explicit statement of the objective that the organization is supposed to achieve. We basically adopt the criteria suggested by Yaron (1992) to judge success. The first criterion is self-sustainability. This requires that the RFI --just as any other organization in the market-- be able to generate enough income to cover at least the opportunity cost of all the factors of production and assets (e.g., funds) under its command, while being able to honor all the contractual obligations implied by its liabilities. This is a sufficient condition for the maintenance of the real value of the organization's loan portfolio. The second criterion is the number of clients served and the quality of the services provided by the organization. This is an outreach objective. A large number of Indonesian RFIs have achieved substantial success from the perspective of these criteria. The most salient indicators of these accomplishments are briefly reported below.

(a) Quality of Services

The quality of financial services is reflected in the transaction costs incurred by the customers of RFIs. In the case of Indonesia, such costs have been comparatively low as a

result of several factors. First, the organizations have been designed to provide their services where the costumers are. These RFIs are either located at the village level or have developed ambulatory banking services to serve customers there. Table 1 shows that eight RFI systems operate, altogether, almost 13,000 units and village posts. They are particularly numerous in the densely populated provinces of Java and Bali.

All the steps necessary to complete a financial transaction are undertaken locally. In most cases, the borrower does not have to leave her own village. Further, local decisionmaking and character-based lending (no collateral is required) allow for the rapid disbursement of loans. Most of the time the funds are available when needed, with no particular restrictions on use.

Second, comparatively low transaction costs have resulted as well from the fact that loans are granted on an individual basis. Borrowers are not required to form groups in order to provide joint liability and implicit monitoring activities. Loans given to groups impose, *ceteris paribus*, higher transaction costs on individual borrowers, as the formation of the group itself and the implicit risk-sharing and opportunities for moral hazard require significant bargaining and monitoring efforts on the part of group members. The use of local information and mechanisms for enforcement as key components in the design of these RFIs implies that group formation as a requirement for lending would be redundant, while this approach spares borrowers of potentially high transaction costs. Moreover, given highly individualized demands for credit and deposit services, the provision of individual financial services may be welfare-improving for the borrowers.

Table 1. Indonesia: Number and Location of Selected Rural Financial Intermediaries, 1991.

Type	Number of Units	Location	Date of Creation[a]
LPD	631	Bali	1985
KURK[b]	1,426	East Java	1987
BKK-CJ[b]	3,525	Central Java	1971
BKK-SK	30	South Kalimantan	1991
LPN	193	West Sumatra	1932
BKPD-LPK	326	West Java	1971
BRI-unit desa	3,210	entire country	1983
BKD	4,000	Java	1927

Source: Compiled by the authors from reports of the Financial Institutions Development (FID) Project and the Bank Rakyat Indonesia.

a Refers to the date when the organizational type was created or when the system began to participate in a specific technical assistance program (FID), which defined their present design.

b Includes all the village posts of the 222 KURK and of the 510 BKK.

LPD : Lembaga Perkreditan Desa.
KURK : Kredit Usaha Rakyat Kecil.
BKK : Badan Kredit Kecamatan.
LPN : Lumbung Pitih Nagari.
BKPD : Bank Karya Produksi Desa.
LPK : Lembaga Perkreditan Kecamatan.
BRI-unit desa : Unit Desa of Bank Rakyat Indonesia.
BKD : Badan Kredit Desa.

(b) Loan Portfolios and Deposit Mobilization

Compared to other developing countries, the numbers of institutions, units, and clients reached are large and the funds mobilized substantial. Whole financial systems have been established, not just pilot projects that reach small numbers of people. Table 2 presents selected indicators of size for these RFIs. The largest, the BRI-unit desa system, had a loan portfolio equivalent to US$ 738 million. In comparison, the other systems are

smaller, but still large relative to programs for poor borrowers in other countries. The BRI-unit desa system had mobilized an impressive US$ 1.3 billion of voluntary deposits. Although less substantial, the savings mobilized by the other systems are significant compared to their loan portfolios.

Table 2. Indonesia: Indicators of Size for Selected Rural Financial Intermediaries. December, 1991.

Type	Loans Outstanding (billion Rp.)[a]	Deposits Outstanding (billion Rp.)[a]	Number of Borrowers (000)	Number of Depositors[b] (000)
LPD	18.8	14.7	94	204
KURK[c]	10.3	2.6	171	177
BKK-CJ	43.6	7.7	564	496
BKK-SK	1.3	0.6	14	n.a.
LPN	3.7	2.0	19	57
BKPD-LPK	74.0	44.9	218	405
BRI-unit desa	1,476.0	2,542.0	1,900	8,500
BKD	56.0	2.0	1,073	235

Source: Compiled by the authors from reports of the Financial Institutions Development (FID) Project and the Bank Rakyat Indonesia.
For the names of institutional types, see Table 1.
n.a. not available

[a] The exchange rate was about Rp. 2,000 for U.S. dollar.
[b] Corresponds to voluntary depositors.
[c] Corresponds to March, 1992.

These RFIs serve, altogether, over four million people with credit services. In interesting counterpoint, over ten million savers use the depositing services of these RFIs. Thus, a critical observation from Table 2 is that deposit services are more important, in terms of the number of customers (about two-and-a-half times) and of the absolute amounts involved, than credit services. In the aggregate, the deposit balances (Rp. 2,807 billion,

equivalent to US$ 1.4 billion) are larger than loans outstanding (Rp. 1,967 billion, equivalent to almost one billion in US dollars). While this result is influenced by the large amount of voluntary savings mobilized by the BRI-unit desa system, it reflects a substantial demand for deposit facilities in the rural areas of Indonesia.

Table 3 shows the average number of borrowers and of depositors per office. There is a wide range of the number of borrowers served per unit. The lowest corresponds to the LPN (98 borrowers). This is consistent with the client-owned nature of these RFIs, which rely heavily on closeness among their members. At the other extreme of the spectrum one finds that the *kecamatan*-level offices of the BKK-CJ system reached the largest number of clients per unit (1,105 borrowers). This is consistent with the fact that the BKK use, as a credit allocation mechanism, a system of village posts, which cover a number of villages and thus a larger number of borrowers with only one BKK per *kecamatan*. The KURK, with the second largest number of borrowers per unit (770), also operates posts at the *desa* level. The BKK and KURK village posts are similar, in several respects, to the BKD. They operate only during certain days of the week and their services are focused on a very small geographical area.

Table 3. Indonesia: Number of Borrowers and Depositors per RFI Office and Average Loan and Deposit Size.
December, 1991.

Type	Average Number of Borrowers per Office[a]	Average Number of Depositors per Office[a]	Average Loan Outstanding (000 Rp.)[a]	Average Deposit/ Savings (000 Rp.)[b]
LPD	148	323	200.0	72.0
KURK[c,d]	770	797	61.0	14.7
BKK-CJ[c]	1,105	972	77.0	15.5
LPN	98	295	191.0	35.0
BKPD	668	1,242	340.0	110.0
BRI-unit desa	591	2,647	1,250.0	299.0
BKD	268	58	52.0	8.5

Source: Compiled by the authors from reports of the Financial Institutions Development (FID) Project and the Bank Rakyat Indonesia.
For the names of institutional types, see Table 1.

[a] This resulted from dividing the total number of clients by the corresponding number of units in each system. Comparisons must be made with caution. For example, the average numbers for the KURK and BKK systems correspond to the *kecamatan*-based (sub-district) number of offices and not to the village posts. Comparisons among these systems and the BKD would thus require the use of data based on village posts.

[b] The exchange rate was bout Rp. 2,000 for U.S. dollar.

[c] Refers to the offices based at the *kecamatan* level.

[d] Corresponds to March, 1992.

(c) Very Small Clients

Although the diverse clientele and market niches served by these RFI systems is reflected by differences in the average size of loans and deposits, they are mostly reaching the poor. On the larger side, the average BRI-unit desa loan was equivalent to US$ 625. This average loan was, however, 24 times larger than loans granted by the BKD, for an average of only US$ 26. Loan size at the remaining RFIs was well below that at the BRI-unit

desa, as some of these systems reached deeper toward the village level. The average deposit size varied significantly across RFIs, as well. The BRI-unit desa mobilized the largest deposits (US$ 150 on the average), while the BKD mobilized the smallest (US$ 4.25).

(d) Profitable Organizations

Most of the RFI systems earned accounting profits when their units are consolidated.[6] Table 4 shows the net profits, average equity, and return on equity for five of the RFI systems. All these systems earned comparatively high rates of return on equity. The highest corresponded to Bali's LPD (54.2 percent), and the lowest to Central Java's BKK (13 percent). These RFIs have been able to reach large numbers of the rural poor and still remain financially viable (profitable). This is the mark of their achievement.

Table 4. Indonesia: Consolidated Return on Equity for Selected Rural Financial Intermediary Systems.
December, 1989.

Type	Net Profits (Million Rp.)	Average Equity (Million Rp.)	Return on Equity (percentage)
LPD	674.0	1,243	54.2
KURK	806.9	1,602.8	50.3
BKK-CJ	1,700	13,022	13.0
LPN	79.6	391.1	20.3
BRI-unit desa	37,000	97,000	38.1

Source: Computed by the authors from data in the corresponding financial statements.

[6] Although accounting profits are not the most appropriate measure for self-sustainability, we use them as a proxy. For a discussion of the shortcomings of accounting profits as a measure of self-sustainability, see Yaron (1992).

The profitability of these organizations has reflected their financial policies. Although comparisons of effective interest rates show a wide range, they all charge sufficiently high rates, positive in real terms, to cover most, if not all, costs and risks (Table 5). Again, the BRI-unit desa are at one end of the spectrum, by charging the lowest effective rates (31.5 percent per year),while the highest rates (84.4 percent) are charged by the BKD, KURK, and BKK. This contrast was not surprising, as the BRI-unit desa supply larger loans and require collateral from their borrowers.

Table 5. Indonesia: Typical Terms at Selected Rural Financial Intermediaries. December, 1991.

Type	Credit Services				Deposit Services	
	Most Common Effective Rates (percentage)[a]	Most Common Repayment Term (weeks)	Compulsory Savings Required	Collateral Required	Range of Nominal Rates on Savings (percentage)	Savings/ Loans
LPD	53.6	43	yes	no	12 - 24	0.78
KURK	84.4	12	yes	no	12	0.22
BKK-CJ	84.4	12	yes	no	12 - 15	0.18
LPN	38.5 - 54.8	24	yes	no	0 - 24	0.54
BKPD-LPK	59.3	26	yes	no	12 - 24	0.60
BRI-unit desa	31.5	n.a.	no	yes	12 - 22	1.72
BKD	84.4	12	yes	no	15	0.03

Source: Computed by the authors from data in the corresponding financial statements.

[a] This represents the internal rate of return of the most frequently observed credit contract. The assumptions are that the intermediaries reinvest in similar contracts all the cash flows generated by the contract, immediately after payments are received (there are no idle cash balances), that there are no arrears on these cash flows, and that returns are compounded instantaneously. These assumptions are necessary to compare pricing policies, given the great diversity of loan contracts offered by the different programs. The effective rate thus represents an upper bound on the returns on loans. Most intermediaries would not achieve this ideal return.

In general, Indonesian RFIs lend for comparatively short periods, in order to more frequently monitor repayment. The range of the most common repayment terms goes from 12 to 43 weeks (Table 5). To ease the recording of transaction, in most cases installments are credited in the following manner: the first one as interest, the second one as mandatory

savings, and ten additional installments as amortization.[7] For this reason, several RFIs (KURK, BKK, KUD, and BKD) have chosen the 12-week alternative as their most common repayment term. Compulsory savings (that augment effective interest rates) are required by all the systems, except the BRI-unit desa. The latter is the only system, on the other hand, to require collateral.

III. Determinants of Success

This generalized high degree of success of Indonesian RFIs may be mostly attributed to factors that reflect regularities in the design of these systems. This paper surveys the design elements instrumental for this success. Before addressing this task, the hospitable environment in which these intermediaries have functioned is briefly described.

(a) The Environment

Indonesia's dynamic economy and stable macroeconomic and political environment have presented an auspicious climate for financial intermediation. The country has experienced comparatively high rates of growth of output. Numerous profitable opportunities for investment have emerged, as the infrastructure has been developed, domestic markets have become more integrated, and the liberalization of trade policies has widened opportunities for exports to world markets. Permeating the whole economy, this dynamism has resulted in high and growing demands for financial services. Economic

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[7] There may be some incentive advantages to credit the last installment, rather than the first one, as an interest payment. To the extent to which profit-sharing arrangements are based on profits, leaving the earning of income for the last payment may increase incentives to collect.

activity has been particularly intense in the densely populated islands, such as Java and Bali. There, high density of population and a well-developed infrastructure have allowed RFIs to easily dilute their fixed costs and to rapidly achieve equilibrium positions (at least zero losses).

This process of rapid output growth has been accompanied by the liberalization of financial markets, an expanding supply of financial services, and the emergence of substantial competition in the sector (Cole and Slade, 1990). Financial deepening has been further facilitated by a stable macroeconomic performance (no significant domestic inflation or devaluation of the rupiah) and by political stability. The effective presence of government at all administrative levels, a high degree of social cohesion, and the importance of traditional social structures has offered effective mechanisms for financial contract enforcement.

There is no doubt that the stable macroeconomic environment in which these RFIs have evolved and operated has been an important ingredient in their aggregate success. Macroeconomic stability, although very important, is not by itself a sufficient condition, however, for an above-average performance of a significant number of organizational types that deal with marginal clientele. There are many examples of credit programs and organizations with a poor performance in countries with highly stable macroeconomic conditions or political environments and Indonesia has not been an exception. Instances of Indonesian failure have been the *Bimbingan Massal* (BIMAS) credit program and some of the *Koperasi Unit Desa* (KUD) operations.

(b) The Design of Successful Rural Financial Intermediaries

As the auspicious general climate in which these RFIs function cannot explain, by itself, their success, it is necessary to identify regularities, observable across Indonesian successful intermediaries, that are absent in most other developing countries as well as in those Indonesian RFIs that have failed.

The success of RFIs in Indonesia has been the outcome of strong combinations of the factors described below. These individual ingredients of success represent, in turn, the specific implementation of an underlying concern with the viability of the organizations and, thereby, with their permanency over time. This objective has resulted in the generalized adoption of most elements of a complete and appropriate design by of the RFIs. This design has provided the economic agents involved in their operation (managers and clients) with both the incentives to behave in a manner conducive to success and the opportunities to do so. Incentives and opportunities are necessary conditions for the success of organizations and, therefore, of the credit programs that they are supposed to carry out.

The relevant Indonesian authorities have recognized that it is more useful, in terms of development, to promote organizations that provide financial services at market prices, in a permanent fashion, than to sponsor short-lived, subsidized credit programs that only have a transitory impact. The question of why this has been the case begs an answer. Nevertheless, the answer to why the Indonesian authorities have had the incentives and the skill to design and implement such programs, while similar authorities in other countries have not, is beyond the scope of this paper. Instead, the paper deals with design issues about the organizations, taking as given the objective of self-sustainability.

IV. The Rural Financial Markets Paradox

The almost endemic lack of access on the part of marginal clientele to formal financial services should be explained, at least in part, by an apparent paradox. Those agents who have inexpensive access to information and monitoring mechanisms, to ensure reasonable repayment rates, may not have enough resources or may be too risk averse to provide widespread financial services in their locality; while those who do have the resources and the necessary attitudes toward risk have no access, at a reasonable cost, to the required information and monitoring tools.[8]

As long as this separation between the required access to information and the necessary resources --including attitudes toward risk and opportunities for diversification-- is present, there are limited opportunities for the widespread availability of financial and insurance services in the rural areas. In addition, in most developing countries there are policy distortions that make rural clientele unattractive. That is, some formal intermediaries may not want to provide financial services to small rural clientele because regulatory constraints render such activities unprofitable (Gonzalez-Vega, 1976). Such policies may increase the problem significantly.

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[8] Given attitudes toward risk, the willingness to invest depends on the opportunity to move resources in space and the implied ability to diversify. It is clear that agents with access to local information would lose such advantage when dealing with agents located elsewhere. Therefore, unwillingness to lend to individuals exposed to covariant risks (i.e., in the same village) may reflect these constraints.

V. The Main Design Elements of Successful RFIs in Indonesia

A constellation of mutually reinforcing design features are key determinants of the success of Indonesian RFI. These features, which have been adopted independently of the specific ownership arrangements, are examined below.[9]

(a) The Information Component

An effective solution of the rural financial market paradox has been one of the fundamental ingredients of the success of Indonesian RFIs. These organizations have fostered the interaction of both types of agents, those who have the information and those who have the resources, in the provision of financial services for the rural poor. Such interaction has been at the foundation of other reported instances of success. The use of group lending and joint liability by the Grameen Bank in Bangladesh and by PRODEM in Bolivia are nothing else but attempts to solve the formal lender's problems in rural and informal credit markets: it is too costly to gather information on the likelihood of a borrower defaulting on a loan, it is too costly to monitor the actions of the borrower once a loan has been granted, and quite often it is too costly, if not impossible, to enforce loan contracts. Group lending (joint liability) attempts to enlist the efforts of the borrower's peers (those who have information) in reducing these problems, by imposing a utility cost on them (e.g., denied future access to loans) if the borrower defaults. On the other hand, it is necessary to stress that group lending is but one (costly) option among several possible strategies to solve this problem.

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[9] There is a network of branches of a large development bank owned by the national government (BRI-unit desa), as well as provincial government, village, and client ownership. As indicated, private banks have also adopted these features.

Several layers of the Indonesian government (those who have the resources) have intervened, rather successfully, in the country's rural financial markets in an attempt to solve the problem of lack of formal financial services, by establishing networks of semi-independent, locally-operated RFIs. The Indonesian government has recruited, for that purpose, the services of local agents who have a comparative advantage in gathering information about borrowers, monitoring their actions, and enforcing loan contracts.

The borrower screening technology used in Indonesia is simply personal knowledge of the borrower and/or the requirement of a reference from some local authority (e.g., village *lurah*) who possesses such knowledge. Most loans are provided on the basis of character references alone and do not require collateral.

It is widely agreed that the most important non-financial costs for a bank are incurred (and its comparative advantages are developed) while processing information about the likelihood that individual borrowers will pay their loans as promised. In order to accomplish this goal, traditional banks have developed sophisticated techniques of loan analysis. These techniques become prohibitively expensive when banks deal with small loans, because the associated expenses tend to be invariant to loan size. Moreover, some of these techniques could not be utilized, most of the time, when supplying credit to small borrowers, even if the RFIs wanted to do so, simply because they rely on data that are not available in that segment of the market (e.g., audited financial statements).

Screening costs are, on the other hand, an increasing function of the distance between the financial intermediary and the borrower. Here we refer not only to geographic distance, but to any type of distance (ethnic, cultural, occupational). Some financial intermediaries

specialize in the provision of services to particular sectors of economic activity, thus developing a comparative advantage (low cost) in serving them. Other agents possess information or have access to special contract enforcement mechanisms within specific social or occupational groups (Esguerra, 1993).

The adoption of character references as a borrower screening technology by many Indonesian RFIs has important implications in terms of operating costs.[10] Character-based lending is a comparatively inexpensive technique for two reasons. First, local information about a borrower is a sunk cost, in the sense that it is an asset that does not have a value outside the local financial market (it may actually become an entry barrier enjoyed by the local moneylender). Second, such information is acquired in a slow fashion, the only needed expenditure resulting from having been in the location for a sufficiently long period of time. Clearly, this advantage may be obtained by an outside lender if management is hired among local residents or if it has access to reliable sources of local information. More importantly, character-based lending seems to have been comparatively efficient in avoiding costly mistakes in assessing the probability of loan repayment.[11] These mistakes are translated into highly expensive loan defaults.

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[10] Here we analyze the benefits, in terms of operating costs, from access to a screening technology based on local knowledge. It is assumed that this technology is effective --as has been the case-- in preventing delinquency and loan losses. The additional issue of why local knowledge, character references, and the use of informal and/or traditional institutions to enforce credit contracts have been so effective to prevent loan losses is analyzed in detail below.

[11] It seems that the local character reference has been more efficient than alternative screening techniques. Obviously, different technologies are not necessarily exclusive and important complementarities may exist. The likelihood of repayment depends on several variables, including monitoring after the loan has been granted.

(b) The Agency Problem, Incentives, and Local Decisions

The recruitment of informed/local agents replaces, however, one problem with another. The information/enforcement problem now becomes an agency problem. That is, the formal lender has to ensure that the local agents have, in fact, access to the necessary information, and that they will behave consistently with the owner's interests. It is possible, actually likely, that the agents will shirk with respect to the amount of effort necessary to collect loans or that they will collude with borrowers in the screening process. This may occur despite the comparative advantage of the local agent because he has to incur in a positive amount of effort to gather the information, monitor loans, and enforce contracts. The level of effort actually exerted cannot be easily observed, however, by the formal lender (owner). It is clear that incentive problems may arise.

An information asymmetry is at the heart of any agency problem. In the Indonesian case, the information problem implied by this agency relationship has been less severe --or easier to solve-- than the information problem associated with lending to a rural clientele. The solution has been a system of incentives (performance-based remunerations and efficiency wages) that has induced a behavior, on the part of RFI managers (the local agents), consistent with the financial health of the unit (compatible incentives).

The information/enforcement problem of formal lenders (i.e., the layers of the government) in rural markets thus evolved into a problem of verification of the performance of management and the corresponding units. This should be an easier task than to use a development bank located in Jakarta or any one of the provincial capitals in order to disburse and recover individual rural loans. In the case of some Indonesian RFIs, the

formal lender's information problem has been devalued to the verification of the profits of individual units, which operate as profit/loss centers. Profits are comparatively inexpensive to verify and have been interpreted as a sufficient statistic for management efforts.[12]

The management of these successful RFIs has been induced to behave consistently with the financial viability of the organizations by a system of incentives constructed on performance-based compensation schemes (e.g., profit sharing, collection fees) and on management's quasi-equity contributions in the form of efficiency earnings. To a large extent the managers of the RFIs have been made co-owners of their corresponding unit. Thus, agents who posses or have access to advantages of information, monitoring, and enforcement are subject to utility gains or losses depending on the performance of their units.

In effect, all successful Indonesian RFIs have established a management compensation scheme based on performance. Most of the schemes observed consist of a total remuneration that results from the combination of a fixed salary plus a bonus or incentive payment that is a function of some observable variable, such as profits or loan installments recovered. Similar compensation mechanisms are widely used by private firms all over the world. What is innovative in the Indonesian case is the almost universal adoption of such mechanisms even when the ostensible or formal owner of a particular RFI

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[12] Clearly, management may have incentives to misrepresent financial performance (state falsification). Comparatively simple auditing techniques can be used to reduce this problem. On the other hand, the variable profits may be clouded with realizations of risks that are covariant for all borrowers. In the Indonesian case, however, this would require a natural disaster or a problem of similar magnitude, due to the high diversification practiced by borrowers and, thereby, of the RFI units.

is any one of the multiple layers of the public sector (e.g., provincial or village governments). This phenomenon of public servants enjoying performance-based monetary incentives is rather unusual, if non-existent, in Latin America or the United States.

Although the particular formulae as well as the variables involved in the computation of the incentives vary across organizations, the adoption of these schemes implies the recognition of and explicit attempt to reduce the principal-agent problems that appear with delegation.[13] In the Indonesian case, the owners of financial institutions, whoever they may be, have recognized that, when there is a separation of management from ownership problems arise, as the objective functions of the two may not necessarily coincide.

On the other hand, the total compensation earned by management and other staff of the successful RFIs seems to have been, on the average, significantly higher than the remuneration for which equivalent employees would be willing to perform the same functions. Gonzalez-Vega and Chaves (1992) report that all RFI staff members interviewed declared to be more than satisfied with their current salary and future compensation (e.g., pension plan), and that they did not believe they would be able to obtain an equivalent job neither would they want to. This strongly suggests that efficiency wages are being paid.

Efficiency wages is a general term to denote the salary paid to an employee while equivalent workers would be willing to perform exactly the same tasks for a lower wage.

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[13] The separation of management and ownership is a particularly severe problem in the case of public enterprises, where the concept of ownership is completely diffused. The ostensible owners of most public institutions are the citizens of a particular country. The immense majority of them do not exercise any control over the organization. Even if they wanted to, they cannot influence the organization's performance and do not receive the dividends or direct retribution (usually losses) that result from this performance.

Some authors argue that such payments may occur when it is difficult (expensive) to observe (supervise) the activities or amount of effort provided by an agent and/or when the actions of the agent (or lack of them) might impose a severe cost on the principal. Moreover, in the Indonesian context the punishment tools for substandard employee performance available to RFI owners are limited to suspension, demotion, or firing of employees.[14]

Under these conditions, employers must find mechanisms to elicit adequate effort from their employees. One of the ways for doing so is to raise wages above the opportunity cost of workers. This increases, in turn, the cost of job loss and encourages workers to put forth adequate effort and behavior.[15] That is, the principal may find it in its interest to pay a higher than a market-clearing salary to its agents, so as to increase their cost of being fired. This cost is equivalent to the difference between the present discounted value of the salaries from the position and of the expected salaries in alternative occupations. Clearly, for the principal to find efficiency wages attractive, the increased expenditure must be outweighed by the increased productivity of greater effort and/or reduced costs of undesired behavior (e.g., shirking and fraud).

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[14] In Indonesia, imprisonment, resort to tort or contract law for redress are simply not available options for most forms of management malfeasance.

[15] One alternative and more direct method would be for workers to post performance bonds at the time of hiring, which would be forfeited if the employee is caught misbehaving. This, however, is not feasible, because employees, particularly early in their working lives, face wealth constraints and lack the liquidity required to post bond. This problem may have been solved in Indonesian RFIs by a combination of efficiency wages and other employment arrangements that may implicitly perform bonding functions, such as upward-sloping age-earnings profiles (seniority raises), pensions, and internal promotion ladders.

The idea behind this hypothesis is that the management of Indonesia's RFIs tend to value their jobs considerably because their current positions, earnings profiles, and other employment arrangements cannot be easily replaced. These benefits act as a quasi-equity contribution or as a posted bond on the part of management. The result is that their behavior is more prudent and industrious than otherwise.[16]

This is an additional feature of the incentive system (profit sharing) described above; not only do agents have a direct stake in the successful performance of the organization, as to have an incentive to make the right decisions, but in addition they value their positions more than any other alternative job in the relevant portion of the labor market.

In most other developing countries, the management of RFIs (public development banks and non-government organizations) are paid little in comparison to what they might earn performing similar functions and with similar responsibilities at another firm. This has caused RFIs to hire personnel who do not value their position highly, and leave as soon as an opening becomes available, taking with them the experience accumulated in their job. Also, when RFIs pay comparatively low salaries, they select their management from a pool of applicants who respond to job offerings that pay a salary below the market average for similar positions.

The lesson from Indonesia is that it may be profitable for RFIs to pay comparatively high salaries, not only to attract qualified personnel, but also to make sure that they value

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[16] Efficiency wages are particular to a given individual, her current salary and her alternative expected income. A salary level that may be high enough so that an individual behaves in the desired manner may be insufficient for another individual or too low for a different occupation.

their current positions enough to behave in the desired manner. This is required because of the nature of the tasks they must perform and the difficulty to monitor their actions at a non-prohibitive cost.

The substitutability between monitoring and efficiency wages is not perfect. Thus, the use of efficiency wages would not allow for the total elimination of internal control efforts, because, for these compensation levels to work, there must be a credible probability of wrongful or negligent behavior being detected. The effectiveness of efficiency wages resides in the fact that being fired represents a punishment, as it is unlikely that the agent will find a similar salary in the market.[17] No level of punishment is deterrent enough if the probability of being caught and, therefore, punished is zero.

In the Indonesian case, the combination of profit-based management compensation schemes and efficiency wages implies that managers are, for these purposes, co-owners of the individual units. They have become residual claimants --of sorts-- of the profits generated by their particular unit. While performance-based payments make them claimants of part of the profits, efficiency wages act as quasi-equity contributions on their part, implying a loss when the organization goes bankrupt or when they are caught acting improperly.[18] That is, management has a pecuniary stake in both the up and down sides of the profit distribution of the organization.

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[17] It is obvious that the expected value of the punishment must be greater than the expected benefits from wrongful behavior, in order to discourage it.

[18] Clearly, efficiency wages act as quasi-equity contributions when there is a credible threat that the unit will not be bailed out or that management will be replaced in case of bankruptcy. Also, the probability of being caught in case of improper behavior must be positive.

(c) Decentralization of Decisions

The use of performance-based incentives and efficiency wages would not serve any purpose if the agents (managers) did not possess discretionary powers over performance-relevant variables.

In the case of the successful RFIs observed there is a wide variability concerning the decisions that their management can make independently from the owners or the regulators. In all cases, nevertheless, the managers have had the responsibility to screen loan applicants and to decide whether to grant the loans and for what amounts. No targeting of loans that would take this authority away exists. In most cases the corresponding layers of the government have not imposed any severe restriction on the units with respect to their financial policies.

Relevant variables, such as effective interest rates or the use of loan funds, were not dictated by the government and/or were not effectively supervised. In most cases these two options are equivalent. The most important exception are the BRI-unit desa, which belong to a more centralized and traditional banking structure. The remaining RFIs are, for all practical purposes, collections of independent units that share general institutional characteristics. For these other organizations, the implementation of general guidelines with respect to financial policies has been far from uniform across units. For instance, effective interest rates may vary within RFI systems because compensatory balance requirements are not uniform across units.

This relative autonomy has allowed the units to adapt --within certain bounds-- to their specific environments and has avoided the costs to the government of an otherwise

expensive, and very likely ineffective, supervision. The only supervision actually exercised has responded to internal control issues, which in this context has meant efforts to avoid that management divert funds for their own benefit (corruption) and verification of the accuracy of financial statements. A good combination of an *ex ante* probability of discovering wrongful behavior with sufficient *ex post* punishment would help to prevent corruption. In any case, to determine whether the funds have been stolen and/or financial statements are incorrect is considerably less expensive than to check for compliance with several policy regulations and guidelines on fund uses.

(d) Adequate Financial Policies

A critical component of this successful design has been the adoption of sensible financial policies, adopted with the purpose of protecting the viability of the units. In particular, the interest rates charged have been highly positive and consistent with the small size and high risks of the credit transactions. As reported in Table 4, the effective annual interest rates charged vary from 31.5 to 84.4 percent per year. These rates are high in real terms, as in the past ten years Indonesia has experienced single-digit inflation.

Bounds on contractual nominal interest rates set by the corresponding layer of the government have in some cases reflected an attempt to limit the monopolistic powers of RFI managers. Such limits have worked, however, only to a certain extent. Some units have increased the effective rates charged on loans by demanding, in some cases even confiscating, compulsory savings that function as compensatory balances. The critical fact is that the effective interest rates charged have allowed for the real growth of loan balances.

(e) Subsidies without Dependence

Another critical component of this overall design has been that the subsidies involved have not created organizational dependency and have been granted to the RFI itself, not its clientele. This has also contributed to the financial viability of the RFIs. The majority of these quasi-public RFIs received an initial endowment of resources to start their operations. Although the financial cost of this initial capitalization and of the retained earnings might represent an important implicit subsidy, in Indonesia it did not create dependency on the external source of funds on the part of the intermediary. This has been so because the subsidies were one-time loans and/or direct transfers, in the form of seed capital, not followed by the expectation of additional injections of resources. No operating subsidies have been granted.

The advantage of this approach has been that the organizations have been able to plan on a solid basis, rather than depend on annual budgets of outside resources and become vulnerable to the swings associated with such funding, linked either to the mood of politicians or the availability of fiscal resources in a particular year. The lesson learned is that if a subsidy is going to be granted to the intermediary, it may be better to give it as a one-shot and as a lump-sum transfer.[19]

It is important to stress that the one-shot subsidy strategy must be credible. This means that the RFI decisionmakers must believe that future bail outs or replenishment of

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[19] The size of the subsidy may have important consequences, particularly on deposit mobilization. For a full discussion of this issue see Gonzalez-Vega and Chaves (1992, pp. 89-90).

losses will not take place.[20] This requires a firm stand on the part of the donor. Although a subsidy may not be required in every situation of rural financial market development or RFI strengthening, when it may be necessary or if it is to be granted, it may be optimal to provide it in a credible once-in-the-organization's-life basis.

Another feature of the subsidies granted to the successful RFIs is that they have been directed to the organization itself and not to its borrowers. In other countries as well as in the case of non-successful Indonesian RFIs, the subsidies have been captured by the final borrowers, through subsidized interest rates and/or loan losses. In the successful RFIs, the subsidies have been mostly capitalized in the form of retained earnings. This has improved the viability of the organization, not only because of increased solvency, but also because of its consequences on the behavior of management and borrowers, who have perceived the unit as a permanent institution. Increased equity may imply higher profit-based payments for management and larger loan amounts for borrowers. The financial health of the intermediary becomes of great importance for both groups of agents. Another advantage of this capitalization of subsidies is that it makes possible, in the future, to privatize the organization. This is not possible when the subsidies have already been relinquished to the borrowers.

A key component of the implicit subsidy has been competent technical assistance, free of charge, on general policies and procedures, that has not created dependency, because

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[20] From the point of view of management, the credible commitment not to bail the organization out is equivalent to a credible threat that if it experiences financial problems, management will be replaced. That is, no second chance will be offered to management. An equivalent strategy may not be easy to implement for borrowers.

no support for local staff salaries has been involved.[21] In other countries, such assistance has caused overstaffing, and the organizations have found it difficult to cut back in payroll expenses when the donors leave.

(f) Extent of the Intervention and the Fixed Cost Structure

The design of these RFIs has implied that the extent of the intervention has been adequate. Actually, one of the lessons from the success of these RFIs is that government interventions must be proportional to the magnitude of the problems they attempt to solve. Successful government interventions do not have to be massive undertakings that imply large fixed-cost structures (e.g., elegant buildings, expensive payrolls). RFIs should not be burdened with a cost structure that is not compatible with the comparatively small size of the markets where they function. When there are costs that are fixed in nature, an associated minimum volume of transactions is required to support an organization.[22]

The income statements of these RFIs have not been burdened with fixed-cost structures disproportionate to the size of the market being served. The problem that they were asked to solve was one of access to credit at the village level. An organization with dimensions compatible to that of the village was therefore created. The traditional

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[21] This has been the case of the AID-sponsored Financial Institutions Development Project.

[22] Clearly, when fixed costs do not exist, costs of operation are positive only when services are actually provided. This is the nature of the operation of most moneylenders who are not fully devoted to the activity. Full-time moneylenders, on the other hand, have as their fixed cost the alternative returns of their investments plus the opportunity cost of their time. These tend to be low fixed-cost structures, when compared to the fixed costs of an organization.

approach would probably have been to create a development bank, headquartered in the provincial capital, with a large branch network at the *desa* level.[23]

Some of these RFIs (e.g., the BKK-CJ) are located at the subdistrict level (*kecamatan*), but operate a system of village posts or ambulatory banking services to reach some of the villages within their area of influence. Teams of usually two employees visit the villages --once a week-- to provide basic banking services. This is an example of how the fixed costs of operating a RFI unit are diluted among several villages. These ambulatory banking services reduce average costs for the RFI and transaction costs for its borrowers. In other cases, the systems were explicitly designed to minimize fixed costs. For instance, at the (BKD) salary payments, usually a large component of total fixed costs, are avoided, since the retribution to their management is entirely a variable cost (i.e., a proportional fee on loan recovery).

Furthermore, the origins and evolution of these RFIs show that gradual growth is a good approach to institution building. There has been a process of trial and error, in which errors have not been extremely expensive, while corrections have been implemented with comparative ease. When organizations and/or structures are born large, mistakes are very costly, sometimes costly enough as to make them disappear, and corrections are difficult to implement.

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[23] The BRI-unit desa system is a successful centralized system. Although each unit desa is a profit/loss center, it does not reach the village level and it lends to larger borrowers. In some cases, it uses ambulatory services to reach below the sub-district.

(g) Non-traditional Collateral, Borrowers' Recognition, and Enforcement

Emphasis on the viability of RFIs has implied that the organizations have been able to provide agile and efficient financial --mostly credit-- services to their clients. The rapid disbursement and low transaction costs of loans and the possibility to pledge non-traditional forms of collateral such as the value of the borrower's reputation (character reference) have made these RFIs valuable organizations for their clientele. On the other hand, their policies (high interest rates) and design (manager co-ownership) have induced borrowers to perceive them as permanent organizations credibly committed to collect loans. Both the benefits of protecting the relationship with the RFI and the costs of default are high. This has further increased, in turn, the value of the borrower's reputation with respect to a particular unit. The result have been comparatively low levels of delinquency, as borrowers have pledged an expensive "hostage" as collateral for their loans.[24]

High repayment rates may not be completely explained, however, by the loss of the value of the relationship with a particular RFI. There may be other significant costs for the borrowers of falling in arrears and of not repaying their loans. Despite the importance of the bank-client relationship, this may not be an entirely acceptable explanation in the areas where there is strong competition and intermediaries do not share --at least directly-- their borrowers' credit history. Intense competition may imply a high probability of obtaining a

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[24] The value of reputation or the value of the relationship with the intermediary may serve as a hostage pledged by the borrower. Default on the loan would have as consequence the suspension of a valuable financial relationship with a particular intermediary and/or a market-wide loss of reputation. Access to financial markets has a value. There will be default if the benefit of repudiating a debt is larger than this value of access. Obviously, both variables are endogenous in the sense that they are affected, for instance, by the efforts of the lender to collect and by communication among lenders.

loan from another RFI, while the absence of cross-information may decrease the probability of being screened out by the new RFI because of defaults somewhere else. This suggests that there may be, in addition to these incentives, important social and economic pressures from local traditional and political structures to force compliance with credit contracts in the rural areas of Indonesia.

Regardless of the formal ownership of the RFIs, they have incorporated or used the traditional hierarchical structures of the community where they operate in order to increase the probability of repayment. This is particularly important for the *ex post* reductions of loan delinquency (pure enforcement).[25] Most Indonesian lending organizations use the political chief of the village (*kepala desa*) or clan leader (*lurah*) to induce loan repayment when the borrowers fall in arrears. In effect, all RFIs visited reported that they had never taken any costumer to court, even in the few cases when formal collateral had been required. The managers interviewed had serious doubts regarding the probability of enforcing, at a reasonable cost, credit contracts through the formal legal system.

This issue of lack of formal enforceability of credit contracts gives rise to several important questions. The first one is whether the character reference provided by the local government officials is in fact just that: a reference, or if it represents a way to create accountability, from those officials, to enlist their assistance in the recovery of loans in arrears. One should not expect that a *lurah* or *kepala desa* would have significant informa-

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[25] A pure enforcement problem occurs when a borrower repudiates a debt even though she has enough resources to cancel.

tional advantages over the manager of a given RFI, who has lived and made loans for a long period of time in the same locality, as well.

The role of the *lurah* may be important, therefore, as an instrument of *ex post* contract enforcement. Since the *lurah* earns, in most cases, a fee on each character reference, the function of providing the reference represents a personal asset, worth for the *lurah* the present discounted value of future fees. When the *lurah* has provided a mistaken *ex ante* estimation of the probability of repayment, he would have a strong incentive for exerting pressure on the borrower, in order to recover the delinquent amount and maintain his credibility.

Another interesting possibility is that the *lurah* may be acting as an indigenous credit rating agency, as well. Although the RFIs do not share information about the creditworthiness of individual applicants, such information may be accumulated by the *lurah*. This may be the case because the *lurah* is involved in enforcing credit contracts for several RFIs. He has information, therefore, about those borrowers who have defaulted. On the other hand, every RFI in the region requires loan applicants to provide a character reference from the *lurah*. These two elements may imply that those borrowers who have repudiated credit contracts will be screened out of the loan portfolios of other RFIs because they will not obtain the required character reference.[26] It is clear that the system requires

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[26] It is important to note that the *lurah* and the *kepala desa* are not elected officials. They are appointed by superior layers of the provincial government. This implies that it is unlikely that political considerations (patronage) may distort the character reference provided by such officials. Of course, it is possible that collusion with a borrower (e.g., bribery, nepotism) may influence the character reference. Such instances seem to be the exception, however.

of both dimensions of the *lurah's* involvement; the *ex ante* character reference and *ex post* involvement in case of delinquency.

VI. Conclusion

The Indonesian success in the provision of financial services to the rural poor is in itself an important accomplishment worthy of analysis. Moreover, the Indonesian experience is interesting beyond the range of rural finance. The lessons learned may be an important input, for instance, for institution building in regions such as Eastern Europe, the former Soviet Union, and the developing world, where governments and international agencies are confronting similar questions and challenges.

This experience may shed light on the reform of government-owned financial intermediaries and on improvements of their performance under rather weak mechanisms for the formal enforcement of loan contracts. There is no question that the ultimate objective would generally be the development of a fully-private financial system operating under appropriate regulatory and supervisory frameworks. However, this goal may not be attained soon enough while, for instance, reforming the financial markets of formerly centralized economies and/or when improving access of marginal clientele to financial services in developing countries.

One important lesson from the Indonesian experience is that if the government and/or donor agencies are going to be, or are already, involved in providing assistance to or participating in the ownership of financial intermediaries, there are important and clear principles to follow in order to maximize the benefits and minimize the costs of such

intervention in financial markets.[27] It should be recognized that the design of the organizations that undertake financial intermediation matters, and it matters a lot. Although very important, an appropriate macroeconomic environment may not be sufficient.

Here we refer to the make up of the organizations themselves, not merely to the design of the specific credit programs. Usually, program design efforts have been confined to the allocation of specific amounts of resources for a particular purpose and the choice of target beneficiaries. This is not sufficient and is frequently counterproductive.

The design of an organization that will supply financial intermediation services is vital because this is what, in the last instance, will determine its performance and, hence, the success or failure of the program. Institution building programs can "take the horse to the water, but cannot force it to drink." That is, although adequate financial policies and techniques are necessary, they will never be properly implemented if they do not respond to the interests of those managing the intermediary institutions. These techniques may be taught to them, but they will never be adopted if they essentially contradict the existing structure of incentives.

The implicit paradigm in the analysis is the recognition that the actual performance of an organization, even of economies at large, results mainly from choices made by individuals. It is the managers of financial intermediaries who decide, for instance, to exert a low or high effort to collect loans; while borrowers have to decide whether to repay or not.

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[27] This paper does not discuss the implicit and vital question of whether the government should intervene in the operations of financial markets. Full discussions of this issue are found in Chaves and Gonzalez-Vega (1992), and Besley (1992). Here we refer to general principles that would maximize (or minimize) the net benefit (or loss) of such intervention.

All these development-relevant decisions are the result of individuals maximizing their objective functions under constraints. These constraints, besides the traditional ones, include institutional restrictions and transaction --including information-- costs.

It should be clear, therefore, that in the end the performance of an organization, and of any development program, depends on the willingness (incentives) and ability (constraints) of the individuals involved.[28] That is, success --however defined-- may occur only when it is in someone's best interest and when such interest may be pursued, given the existing constraints and environment.

[28] It is obvious that there are events beyond the control of economic agents. Natural disasters may imply the failure of any development program.

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